

LOI Analyses Software

diff

```
--- Analysis/ILCTOP/ilc/lcfivertex-v00-02-07-dev/vertex_lcfi/algo/src/paramsignificance.cpp      2008-10-22 16:
32:48.000000000 +0100
+++ LCFIVertex/vertex_lcfi/algo/src/paramsignificance.cpp      2007-05-28 16:23:18.000000000 +0100
@@ -101,16 +101,11 @@
     double mommin5 = _AllLayersMomentumCut;
     std::map<SignificanceType,double> ResultMap;

-
-     for (std::vector<Track*>::const_iterator iTrack= (MyJet->tracks().begin()); iTrack != (MyJet->tracks()).
end()) ;++iTrack)
-     {
-         momentum =  (*iTrack)->momentum().mag();
-
-
-         //temporary approximate fix would really like to go back to previous one..
-
-         //         if ( (momentum > mommin4 && (*iTrack)->hitsInSubDetectors()[0] == (_LayersHit-1)) || (momentum >
mommin5 && (*iTrack)->hitsInSubDetectors()[0] >= _LayersHit ))
-         if (momentum > mommin4)
+         if ( (momentum > mommin4 && (*iTrack)->hitsInSubDetectors()[0] == (_LayersHit-1)) || (momentum > mommin5
&& (*iTrack)->hitsInSubDetectors()[0] >= _LayersHit ))
        {

            //check that we have not assigned this track to a gamma or to a Ks
```

reconstruction.xml

```
<lcsim>
  <inputFiles>
    <file>/scratch/LOI_500_mtop_174.0_250fb-1_-80e-+30e+_000_SLIC-v2r5p3_geant4-v9rlp2_LCPhys_sid02.slcio<
  /file>
  </inputFiles>
  <execute>
    <driver name="EventMarkerDriver"/>
    <driver name="ReconDriver"/>
    <driver name="LCIODriver"/>
  </execute>
  <control>
    <numberOfEvents>1000</numberOfEvents>
    <cacheDirectory>.</cacheDirectory>
  </control>
  <drivers>
    <driver name="EventMarkerDriver" type="org.lcsim.job.EventMarkerDriver">
      <eventInterval>100</eventInterval>
    </driver>
    <driver name="ReconDriver" type="org.lcsim.recon.ui.ReconDriver"/>
    <driver name="LCIODriver" type="org.lcsim.util.loop.LCIODriver">
      <outputFilePath>/scratch/LOI_500_mtop_174.0_250fb-1_-80e-+30e+_000_SLIC-v2r5p3_geant4-
v9rlp2_LCPhys_sid02_lcsim-recon-1_4.slcio</outputFilePath>
      <writeOnlyCollections>MCParticle ReconstructedParticles Clusters Tracks HelicalTrackHits
        HelicalTrackMCRelations EcalBarrHits EcalEndcapHits HcalBarrHits
        HcalEndcapHits MuonBarrHits MuonEndcapHits TkrBarrHits TkrEndcapHits
        TkrForwardHits VtxBarrHits VtxEndcapHits LumiCalHits BeamCalHits
        MCParticleEndPointEnergy
      </writeOnlyCollections>
    </driver>
  </drivers>
</lcsim>
```

leptonID.xml

```
<lcsim>
  <inputFiles>

    <file>/scratch/LOI_500_mtop_174.0_250fb-1_-80e-+_30e+_000_SLIC-v2r5p3_geant4-v9rlp2_LCPhys_sid02_lcsim-
recon-1_4.slcio</file>
  </inputFiles>
  <execute>
    <driver name="EventMarkerDriver"/>
    <driver name="PatchDriver"/>
    <driver name="LCIODriver"/>
  </execute>
  <control>
    <numberOfEvents>1000</numberOfEvents>
    <cacheDirectory>.</cacheDirectory>
  </control>
  <drivers>
    <driver name="EventMarkerDriver" type="org.lcsim.job.EventMarkerDriver">
      <eventInterval>100</eventInterval>
    </driver>
    <driver name="PatchDriver" type="org.lcsim.recon.postrecon.leptonID.PostReconLeptonIdentifier"/>
    <driver name="LCIODriver" type="org.lcsim.util.loop.LCIODriver">
      <outputFilePath>/scratch/LOI_500_mtop_174.0_250fb-1_-80e-+_30e+_000_SLIC-v2r5p3_geant4-
v9rlp2_LCPhys_sid02_lcsim-recon-1_4_lcsim-patch-1_5
.slcio</outputFilePath>
      <writeOnlyCollections>MCParticle ReconstructedParticles Clusters Tracks HelicalTrackHits
        HelicalTrackMCRelations EcalBarrHits EcalEndcapHits HcalBarrHits
        HcalEndcapHits MuonBarrHits MuonEndcapHits TkrBarrHits TkrEndcapHits
        TkrForwardHits VtxBarrHits VtxEndcapHits LumiCalHits BeamCalHits
        MCParticleEndPointEnergy
      </writeOnlyCollections>
    </driver>
  </drivers>
</lcsim>
```

marlinRecoSteeringfile.xml

```
<group name="FTRPCutProcessorCollection">

  <parameter name="b1_D0Enable" type="bool">true </parameter>
  <parameter name="b2_D0CutLowerThan" type="bool">false </parameter>
  <parameter name="b3_D0CutValue" type="float">20 </parameter>
  <parameter name="d1_Z0Enable" type="bool">true </parameter>
  <parameter name="d2_Z0CutLowerThan" type="bool">false </parameter>
  <parameter name="d3_Z0CutValue" type="float">20 </parameter>
  <parameter name="f1_PTEnable" type="bool">true </parameter>
  <parameter name="f2_PTCutLowerThan" type="bool">true </parameter>
  <parameter name="f3_PTCutValue" type="float">0.1 </parameter>
  <parameter name="g1_DetectorHitsEnable" type="bool">false </parameter>
  <parameter name="h1_MCPIDEnable" type="bool">false</parameter>
  <parameter name="h3_MonteCarloLCRelationCollection" type="string" lcioInType="LCRelation">TracksToMCP<
/parameter>
  <parameter name="i1_BadParametersEnable" type="bool">true </parameter>

  <processor name="FTRPCutProcessor_2Jets" type="RPCutProcessor">
    <parameter name="InputRCPCollection" type="string" lcioInType="ReconstructedParticle">Durham_2Jets<
/parameter>
    <parameter name="OutputRCPCollection" type="string" lcioOutType="ReconstructedParticle"
>FTSelectedJets_2Jets </parameter>
    <parameter name="SubParticleLists" type="bool">true </parameter>
    <parameter name="WriteNewCollection" type="bool">true </parameter>
  </processor>
  <processor name="FTRPCutProcessor_4Jets" type="RPCutProcessor">
    <parameter name="InputRCPCollection" type="string" lcioInType="ReconstructedParticle">Durham_4Jets<
```

```

/parameter>
  <parameter name="OutputRCPCollection" type="string" lcioOutType="ReconstructedParticle"
>FTSelectedJets_4Jets </parameter>
  <parameter name="SubParticleLists" type="bool">true </parameter>
  <parameter name="WriteNewCollection" type="bool">true </parameter>
</processor>
<processor name="FTRPCutProcessor_6Jets" type="RPCutProcessor">
  <parameter name="InputRCPCollection" type="string" lcioInType="ReconstructedParticle">Durham_6Jets<
/parameter>
  <parameter name="OutputRCPCollection" type="string" lcioOutType="ReconstructedParticle"
>FTSelectedJets_6Jets </parameter>
  <parameter name="SubParticleLists" type="bool">true </parameter>
  <parameter name="WriteNewCollection" type="bool">true </parameter>
</processor>
</group>

<group name="MyFlavourTagInputsProcessorCollection">

  <parameter name="JProbrResolutionParameterRphi" type="FloatVec"> 0.943512 0.191583 0.334776 0.168117
0.0196978 </parameter>
  <parameter name="JProbrResolutionParameterZ" type="FloatVec"> 1.09571 0.220066 0.292588 0.15417
0.0251253 </parameter>
  <parameter name="IPVertexCollection" type="string" lcioInType="Vertex">IPVertex </parameter>

  <processor name="MyFlavourTagInputsProcessor_2Jets" type="FlavourTagInputsProcessor">
    <parameter name="DecayChainRPCollection" type="string" lcioInType="ReconstructedParticle"
>ZVRESDecayChains_2Jets </parameter>
    <parameter name="FlavourTagInputsCollection" type="string" lcioOutType="LCFloatVec">FlavourTagInputs_2Jets
</parameter>
    <parameter name="JetRPCollection" type="string" lcioInType="ReconstructedParticle">FTSelectedJets_2Jets <
/parameter>
  </processor>
  <processor name="MyFlavourTagInputsProcessor_4Jest" type="FlavourTagInputsProcessor">
    <parameter name="DecayChainRPCollection" type="string" lcioInType="ReconstructedParticle"
>ZVRESDecayChains_4Jets </parameter>
    <parameter name="FlavourTagInputsCollection" type="string" lcioOutType="LCFloatVec">FlavourTagInputs_4Jets
</parameter>
    <parameter name="JetRPCollection" type="string" lcioInType="ReconstructedParticle">FTSelectedJets_4Jets <
/parameter>
  </processor>
  <processor name="MyFlavourTagInputsProcessor_6Jets" type="FlavourTagInputsProcessor">
    <parameter name="DecayChainRPCollection" type="string" lcioInType="ReconstructedParticle"
>ZVRESDecayChains_6Jets </parameter>
    <parameter name="FlavourTagInputsCollection" type="string" lcioOutType="LCFloatVec">FlavourTagInputs_6Jets
</parameter>
    <parameter name="JetRPCollection" type="string" lcioInType="ReconstructedParticle">FTSelectedJets_6Jets <
/parameter>
  </processor>
</group>

<group name="MyFlavourTagCollection">

  <parameter name="Filename-b_net-1vtx" type="string">b_net-1vtx.xml</parameter>
  <parameter name="Filename-b_net-2vtx" type="string">b_net-2vtx.xml</parameter>
  <parameter name="Filename-b_net-3plusvtx" type="string">b_net-3vtx.xml</parameter>
  <parameter name="Filename-bc_net-1vtx" type="string">bc_net-1vtx.xml</parameter>
  <parameter name="Filename-bc_net-2vtx" type="string">bc_net-2vtx.xml</parameter>
  <parameter name="Filename-bc_net-3plusvtx" type="string">bc_net-3vtx.xml </parameter>
  <parameter name="Filename-c_net-1vtx" type="string">c_net-1vtx.xml</parameter>
  <parameter name="Filename-c_net-2vtx" type="string">c_net-2vtx.xml </parameter>
  <parameter name="Filename-c_net-3plusvtx" type="string">c_net-3vtx.xml </parameter>
  <processor name="MyFlavourTag_2Jets" type="FlavourTag">
    <parameter name="JetCollectionName" type="string" lcioInType="ReconstructedParticle">FTSelectedJets_2Jets <
/parameter>
    <parameter name="FlavourTagCollection" type="string" lcioOutType="LCFloatVec">FlavourTag_2Jets </parameter>
    <parameter name="FlavourTagInputsCollection" type="string" lcioInType="LCFloatVec">FlavourTagInputs_2Jets <
/parameter>
  </processor>

```

```

    <processor name="MyFlavourTag_4Jets" type="FlavourTag">
      <parameter name="JetCollectionName" type="string" lcioInType="ReconstructedParticle">FTSelectedJets_4Jets <
/parameter>
      <parameter name="FlavourTagCollection" type="string" lcioOutType="LCFloatVec">FlavourTag_4Jets </parameter>
      <parameter name="FlavourTagInputsCollection" type="string" lcioInType="LCFloatVec">FlavourTagInputs_4Jets <
/parameter>
    </processor>
    <processor name="MyFlavourTag_6Jets" type="FlavourTag">
      <parameter name="JetCollectionName" type="string" lcioInType="ReconstructedParticle">FTSelectedJets_6Jets <
/parameter>
      <parameter name="FlavourTagCollection" type="string" lcioOutType="LCFloatVec">FlavourTag_6Jets </parameter>
      <parameter name="FlavourTagInputsCollection" type="string" lcioInType="LCFloatVec">FlavourTagInputs_6Jets <
/parameter>
    </processor>
  </group>

  <processor name="MyLCIOOutputProcessor" type="LCIOOutputProcessor">
    <parameter name="DropCollectionNames" type="StringVec">RelationCaloHit</parameter>
    <parameter name="DropCollectionTypes" type="StringVec">SimTrackerHit SimCalorimeterHit TrackerHit
CalorimeterHit</parameter>
    <parameter name="LCIOOutputFile" type="string">output.slcio</parameter>
    <parameter name="LCIOWriteMode" type="string">WRITE_NEW</parameter>
  </processor>
</marlin>

```

gearfile.xml

```
<parameter name="Copper_dEdx" type="double" value="1.274359919e-03" />
  <parameter name="FTDCopperThickness" type="double" value="8.000000000e-02" />
  <parameter name="FTDDiskThickness" type="double" value="3.000000000e-01" />
  <parameter name="FTDInnerSupportThickness" type="double" value="2.000000000e+00" />
  <parameter name="FTDInnerSupportdR" type="double" value="4.000000000e+00" />
  <parameter name="FTDOuterCylinderThickness" type="double" value="1.000000000e+00" />
  <parameter name="FTDOuterSupportThickness" type="double" value="1.000000000e+01" />
  <parameter name="FTDOuterSupportdR" type="double" value="4.000000000e+00" />
  <parameter name="Kapton_RadLen" type="double" value="2.857479631e+02" />
  <parameter name="Kapton_dEdx" type="double" value="2.607447430e-04" />
  <parameter name="Silicon872_RadLen" type="double" value="2.502631997e+01" />
  <parameter name="Silicon872_dEdx" type="double" value="1.412859170e-03" />
  <parameter name="Silicon_RadLen" type="double" value="9.366073396e+01" />
  <parameter name="Silicon_dEdx" type="double" value="3.863182419e-04" />
  <parameter name="zFTDInnerConeEnd" type="double" value="1.300000000e+03" />
  <parameter name="zFTDInnerConeStart" type="double" value="5.500000000e+02" />
  <parameter name="zFTDOuterCylinderEnd" type="double" value="1.300000000e+03" />
  <parameter name="zFTDOuterCylinderStart" type="double" value="8.000000000e+02" />
  <parameter name="FTDInnerRadius" type="DoubleVec" value="38 48 59 68 90 111 132" />
  <parameter name="FTDOuterRadius" type="DoubleVec" value="140 140 210 270 290 290 290" />
  <parameter name="FTDZCoordinate" type="DoubleVec" value="200 320 440 550 800 1050 1300" />
</detector>
<detector name="SIT" geartype="GearParameters">
  <parameter name="SITLayerThickness" type="double" value="3.000000000e-01" />
  <parameter name="SITLayer_RadLen" type="double" value="2.502631997e+01" />
  <parameter name="SITLayer_dEdx" type="double" value="1.412859170e-03" />
  <parameter name="SITLayerHalfLength" type="DoubleVec" value="380 660" />
  <parameter name="SITLayerRadius" type="DoubleVec" value="160 300" />
</detector>
<detector name="VXDInfra" geartype="GearParameters">
  <parameter name="ActiveLayerProperties_dEdx" type="double" value="3.863182419e-04" />
  <parameter name="CryostatAlHalfZ" type="double" value="1.700000000e+02" />
  <parameter name="CryostatAlInnerR" type="double" value="2.320000000e+01" />
  <parameter name="CryostatAlRadius" type="double" value="1.000000000e+02" />
  <parameter name="CryostatAlThickness" type="double" value="5.000000000e-01" />
  <parameter name="CryostatAlZEndCap" type="double" value="1.702500000e+02" />
  <parameter name="Cryostat_RadLen" type="double" value="8.896320560e+01" />
  <parameter name="Cryostat_dEdx" type="double" value="4.329175517e-04" />
  <parameter name="ElectronicEndLength" type="double" value="1.000000000e+01" />
  <parameter name="ElectronicEndThickness" type="double" value="1.965600000e-01" />
  <parameter name="StripLineBeamPipeRadius" type="double" value="2.300000000e+01" />
  <parameter name="StripLineProperties_RadLen" type="double" value="2.857479631e+02" />
  <parameter name="StripLineProperties_dEdx" type="double" value="2.607447430e-04" />
  <parameter name="StripLineThickness" type="double" value="9.438000000e-02" />
  <parameter name="SupportLayerProperties_dEdx" type="double" value="2.958134277e-04" />
  <parameter name="VXDEndPlateInnerRadius" type="double" value="2.320000000e+01" />
  <parameter name="LadderGaps" type="DoubleVec" value="0 0.04 0.04 0.04 0.04" />
  <parameter name="StripLineFinalZ" type="DoubleVec" value="136 136 140 145 150" />
</detector>
</detectors>
</gear>
```

LeptonIDDriver.java

```
// MainLoop.java
// Java wrapper to enable running outside of JAS3
// 16-JUL-2005 Jan Strube
// from a response to the JAS mailing list by Tony Johnson

import java.io.File;
import org.lcsim.recon.postrecon.leptonID.PostReconLeptonIdentifier;
import org.lcsim.recon.ui.ReconDriver;
import org.lcsim.util.Driver;
import org.lcsim.util.aida.AIDA;
import org.lcsim.util.loop.LCIODriver;
import org.lcsim.util.loop.LCSimLoop;
import org.lcsim.job.EventMarkerDriver;

public class LeptonIDDriver extends Driver {
    public LeptonIDDriver() {}
    public static void main(String[] args) throws Exception {
        //System.out.print(args[0]);
        LCSimLoop loop = new LCSimLoop();
        File input = new File(args[0]);
        String fileBasename = args[0].substring(args[0].lastIndexOf('/')+1);
        loop.setLCIORRecordSource(input);
        EventMarkerDriver eventMarkerDriver = new EventMarkerDriver();
        loop.add(eventMarkerDriver);
        loop.add(new PostReconLeptonIdentifier());
        LCIODriver outputDriver = new LCIODriver();
        outputDriver.setOutputFilePath("output.slcio");
        outputDriver.setWriteOnlyCollections(new String[] {"MCParticle", "ReconstructedParticles", "Clusters",
"Tracks"
, "HelicalTrackHits", "HelicalTrackMCRelations", "EcalBarrHits", "EcalEndcapHits",
"HcalBarrHits"
, "HcalEndcapHits", "MuonBarrHits", "MuonEndcapHits", "TkrBarrHits", "TkrEndcapHits"
, "TkrForwardHits", "VtxBarrHits", "VtxEndcapHits", "LumiCalHits", "BeamCalHits"
, "MCParticleEndPointEnergy"}
);
        loop.add(outputDriver);
        loop.loop(-1);
        loop.dispose();
    }
}
```

ReconstructionDriver.java

```
// MainLoop.java
// Java wrapper to enable running outside of JAS3
// 16-JUL-2005 Jan Strube
// from a response to the JAS mailing list by Tony Johnson

import java.io.File;
//import org.lcsim.recon.postrecon.leptonID.PostReconLeptonIdentifier;
import org.lcsim.recon.ui.ReconDriver;
import org.lcsim.util.Driver;
import org.lcsim.util.aida.AIDA;
import org.lcsim.util.loop.LCIODriver;
import org.lcsim.util.loop.LCSimLoop;
import org.lcsim.job.EventMarkerDriver;

public class ReconstructionDriver extends Driver {
    public ReconstructionDriver() {}
    public static void main(String[] args) throws Exception {
        //System.out.print(args[0]);
        LCSimLoop loop = new LCSimLoop();
        File input = new File(args[0]);
        String fileBasename = args[0].substring(args[0].lastIndexOf('/')+1);
        loop.setLCIORRecordSource(input);
        EventMarkerDriver eventMarkerDriver = new EventMarkerDriver();
        loop.add(eventMarkerDriver);
//        loop.add(new PostReconLeptonIdentifier());
        loop.add(new ReconDriver());
        LCIODriver outputDriver = new LCIODriver();
        outputDriver.setOutputFilePath("output.slcio");
        outputDriver.setWriteOnlyCollections(new String[] { "MCParticle", "ReconstructedParticles", "Clusters",
"Tracks"
                                , "HelicalTrackHits", "HelicalTrackMCRelations", "EcalBarrHits", "EcalEndcapHits",
"HcalBarrHits"
                                , "HcalEndcapHits", "MuonBarrHits", "MuonEndcapHits", "TkrBarrHits", "TkrEndcapHits"
                                , "TkrForwardHits", "VtxBarrHits", "VtxEndcapHits", "LumiCalHits", "BeamCalHits"
                                , "MCParticleEndPointEnergy" }
        );
        loop.add(outputDriver);
        loop.loop(-1);
        loop.dispose();
    }
}
```

LeptonID_ReconstructionDriver.java

```
// MainLoop.java
// Java wrapper to enable running outside of JAS3
// 16-JUL-2005 Jan Strube
// from a response to the JAS mailing list by Tony Johnson

import java.io.File;
import org.lcsim.recon.postrecon.leptonID.PostReconLeptonIdentifier;
import org.lcsim.recon.ui.ReconDriver;
import org.lcsim.util.Driver;
import org.lcsim.util.aida.AIDA;
import org.lcsim.util.loop.LCIODriver;
import org.lcsim.util.loop.LCSimLoop;
import org.lcsim.job.EventMarkerDriver;

public class LeptonID_ReconstructionDriver extends Driver {
    public LeptonID_ReconstructionDriver() {}
    public static void main(String[] args) throws Exception {
        //System.out.print(args[0]);
        LCSimLoop loop = new LCSimLoop();
        File input = new File(args[0]);
        String fileBasename = args[0].substring(args[0].lastIndexOf('/')+1);
        loop.setLCIORRecordSource(input);
        EventMarkerDriver eventMarkerDriver = new EventMarkerDriver();
        loop.add(eventMarkerDriver);
        loop.add(new ReconDriver());
        loop.add(new PostReconLeptonIdentifier());
        LCIODriver outputDriver = new LCIODriver();
        outputDriver.setOutputFilePath("output.slcio");
        outputDriver.setWriteOnlyCollections(new String[] { "MCParticle", "ReconstructedParticles", "Clusters",
"Tracks"
                                , "HelicalTrackHits", "HelicalTrackMCRelations", "EcalBarrHits", "EcalEndcapHits",
"HcalBarrHits"
                                , "HcalEndcapHits", "MuonBarrHits", "MuonEndcapHits", "TkrBarrHits", "TkrEndcapHits"
                                , "TkrForwardHits", "VtxBarrHits", "VtxEndcapHits", "LumiCalHits", "BeamCalHits"
                                , "MCParticleEndPointEnergy" }
        );
        loop.add(outputDriver);
        loop.loop(-1);
        loop.dispose();
    }
}
```